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EXAMINER

MOORE, KARLA A

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 05/14/2003

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/812,075

Applicant(s)

ARNOLD, ROCKY R.

Examiner

Karla Moore

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 4/22/03.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) 32-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1 and 5. 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group 1, claims 1-31, in Paper No. 7 is acknowledged.
2. Claims 32-37 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected group, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claim 31 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Examiner cannot determine what structure from Applicant's specification and drawings is being referred to in Claim 31 by the phrase "removable protective insert".

Claim Objections

5. Claim 31 is objected to because of the following informalities: Examiner fails to find support for a "a removable protective insert" in the specification. Examiner suggests Applicant add the appropriate language to the specification to support the claim or point out where the support can be found. The language would not be considered new matter since claim 31 was a part of the original disclosure. Appropriate correction and/or clarification is required.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-5, 7-13, 15 and 18-19 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,364,481 to Sasaki et al.

8. Sasaki et al. disclose an apparatus for coating a substrate in Figures 8a and 8b, the apparatus comprising: a support (4) that supports the substrate; and at least one moveable processing apparatus (8) capable of depositing a metal layer onto the substrate, wherein the processing apparatus is movable between a first position adjacent the substrate (Figure 8a) and a second position apart from the substrate (Figure 8b) (column 8, row 39 to column 9, row 10).

9. With respect to claim 2, the support comprises a conveyor assembly that can move the substrate.

10. With respect to claim 3, the processing apparatus in the first position creates a seal around at least a portion of the substrate (using sealing materials 81).

11. With respect to claim 4, said apparatus further comprises a vacuum source coupled to the processing apparatus for creating a vacuum in the processing apparatus around the portion of the substrate (column 7, row 64 to column 8, row 11 and column 9, rows 23-30).

12. With respect to claim 5, the support positions the substrate along a plane, wherein the processing apparatus is movable orthogonal to the plane (see arrows in Figures 8a and 8b).

13. With respect to claims 7 and 8, as shown in the embodiment in Figures 8a and 8b the processing apparatus comprises a plurality of modular units that are vertically arranged with their respective treatment planes, disposed in different horizontal planes.

14. With respect to claim 9, the modular units are removable from a treatment position to a retracted position, which allows the substrate to advance (see Figures 8a and 8b).

15. With respect to claims 11 and 12, Sasaki et al. provide many embodiments containing at least three and/or between three and six modular units (see Figures 9-11 and 15 a & b; column 4, rows 30-32).

16. With respect to claim 13, the modular units comprise conduits (71) for communication with a vacuum source (column 9, rows 58-60).

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17. With respect to claim 14, the modular units comprise a cavity formed by the sealing of the walls with the substrate (see Figures 8a and 8b).
18. With respect to claim 15, the modular units comprise heating elements (6).
19. With respect to claim 18, the modular unit may comprise a pretreatment assembly as shown in the embodiment illustrated by Figure 9. The first chamber 31 can be used for pretreatment.
20. With respect to claim 19, as noted above and illustrated in Figures 8a and 8b, the apparatus may comprise first and second apparatus on opposing sides of a substrate.

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. as applied to claim 1-5, 7-13, 15 and 18-19 above, and further in view of U.S. Patent No. 2,000,077 to Harshberger.
23. Sasaki et al. disclose the invention substantially as claimed and as described above.
24. However, Sasaki et al. fail to teach the processing apparatus is rotatable along an axis that is parallel to the plane of the substrate.
25. Harshberger discloses a rotating application member for applying multiple materials to a substrate wherein the applicator rotates for the purpose of relocating a different material adjacent to a substrate for deposition (column 1, rows 24-47 and column 4, row 11 through column 5, row 23).
26. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a rotating application member/processing apparatus in Sasaki et al. in order to apply multiple materials to a substrate as taught by Harshberger.

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27. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. as applied to claims 1-5, 7-13, 15 and 18-19 above, and further in view of U.S. Patent No. 5,536,322 to Wary et al.

28. Sasaki discloses the invention substantially as claimed and as described above.

29. However, Sasaki et al. fail to teach a modular unit with a triangular cross section.

30. Wary et al. disclose a deposition chamber with a triangular cross section (Figures 2, 3, 10 and 11) for the purpose of minimization of chamber volume and maximization of vapor flow (column 8, rows 29-42).

31. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a deposition chamber with a triangular cross section in the prior art in order to minimize chamber volume and maximize vapor flow as taught by Wary et al.

32. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. as applied to claims 1-5, 7-13, 15 and 18-19 above, and further in view of U.S. Patent No. 4,342,631 to White et al.

33. The prior art discloses the invention substantially as claimed and as described above.

34. However, the prior art fails to teach the heater as a filament. Nor does the prior art teach the apparatus comprising a removable cane as a vapor source.

35. White et al. disclose the use of a filament for the purpose of using the filament (Figure 1, 20) as vaporizing means arranged to receive and heat a metal source (cane) being used as a deposition/plating material (column 4, rows 8-16). Examiner notes that the cane is removable in the sense that once the cane is vaporized it is removed from its position where it is received within the heating filament.

36. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a filament and cane in the prior art in order to receive and heat a material (cane) intended for deposition on a substrate as taught by White et al.

37. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. as applied to claims 1-5, 7-13, 15 and 18-19 above, and further in view of U.S. Patent No. 5,053,252 to Kimura et al.

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38. Sasaki et al. disclose the invention substantially as claimed and as described above.

39. However, the prior art fail to teach any of the units comprising a cutting element.

40. Kimura et al. disclose a film-forming chamber containing a cutting element for the purpose of cutting a substrate to a predetermined size (Figure 3, 9; column 1, rows 53-58).

41. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a cutting element in any of the modular units in Sasaki et al. in order to cut the substrate to a predetermined size as taught by Kimura et al.

42. Claims 20-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. as in view of U.S. Patent No. 2,000,077 to Harshberger.

43. Sasaki et al. disclose the invention, an apparatus capable of metallizing a substrate, substantially as claimed and comprising: a support (Figures 8a and 8b; 4) that can maintain at least a portion of the substrate along a first plane; and at least one processing (8) apparatus that is movable orthogonal to the orientation of the substrate; wherein the processing apparatus comprises a plurality of processing units (arranged vertically in Figures 8a and 8b), the plurality of modular units comprising an assembly capable of metallizing.

44. As noted above, although not explicitly taught, the plurality of modular units disclosed by Sasaki et al. would be capable of depositing a metal material.

45. Further, The courts have ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining the patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969).

46. With respect to claim 21, the at least one processing apparatus comprises a first processing apparatus disposed on a first side of the substrate and a second processing apparatus on a second side of the substrate (see figures 8a and 8b).

47. With respect to claim 22, the support comprises a conveyor (4) for moving the substrate.

48. With respect to claim 23, the modular units are removable from a treatment position to a retracted position, which allows the substrate to advance (see Figures 8a and 8b).

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49. With respect to claim 24, the modular unit capable of comprising a metallizing assembly comprises a cavity (formed when the walls are in their lowermost position, see Figures 8a and 8b) for receiving and sealing the substrate.

50. However, Sasaki et al. fail to teach the processing apparatus is rotatable along an axis that is parallel to the plane of the substrate.

51. Harshberger discloses a rotating application member for applying multiple materials to a substrate wherein the applicator rotates for the purpose of relocating a different material adjacent to a substrate for deposition (column 1, rows 24-47 and column 4, row 11 through column 5, row 23).

52. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a rotating application member/processing apparatus in Sasaki et al. in order to apply multiple materials to a substrate as taught by Harshberger.

53. The additional limitations of claims 21-24 are disclosed in Sasaki et al. and are described above in relation to the rejections of claims 1-19.

54. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. and Harshberger as applied to claims 20-24 above, and further in view of Japanese Patent Publication No. 10-168576 A to Akiyama.

55. The prior art discloses the invention substantially as claimed and as described above, including each of the modular units comprising a conduit (Figure 10, 71), wherein the conduit is connected to a vacuum source (column 7, row 64 through column 8, row 11 and column 9, rows 58-60).

56. However, the prior art fails to teach the conduit as releasably connected to the vacuum source.

57. Akiyama teaches releasably connecting a reaction chamber to a vacuum source for the purpose of providing the capability of attaching the reaction chamber to multiple vacuum sources (solution of abstract).

58. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a conduit releasably connected to a vacuum source in the prior art in order to have the capability of attaching a reaction chamber to multiple vacuum sources as taught by Akiyama.

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59. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki et al. and Harshberger as applied to claims 20-24 above, and further in view of U.S. Patent No. 4,342,631 to White et al.

60. The prior art discloses the invention substantially as claimed and as described above.

61. However, the prior art fails to teach the heater as a filament. Nor does the prior art teach the apparatus comprising a removable cane as a metallic vapor source.

62. White et al. disclose the use of a filament for the purpose of using the filament (Figure 1, 20) as vaporizing means arranged to receive and heat a metal source (cane) being used as a deposition/plating material (column 4, rows 8-16). Examiner notes that the cane is removable in the sense that once the cane is vaporized it is removed from its position where it is received within the heating filament.

63. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a filament and cane in the prior art in order to receive and heat a material (cane) intended for deposition on a substrate as taught by White et al.

64. Claims 27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,053,252 to Kimura et al. in view of U.S. Patent No. 5,364,481 to Sasaki et al.

65.

66. Kimura et al. disclose an in-line apparatus capable of making an EMI shield substantially as claimed and comprising: a movable shaping assembly disposed in a first position to shape the substrate (Figure 3, 7/8; column 3, row 49 through column 4, row 2); a metallization assembly wherein the metallization assembly deposits a metal layer onto the shaped substrate (12; column 2, rows 46-60 and column 4, rows 3-6); and a cutting assembly disposed at a second position to cut the shaped substrate the cutting assembly being movable relative to the shaped substrate (9, column 4, rows 3-6).

67. However, Kimura fail to teach the use of a conveyor assembly for moving a substrate from a first position to a second position or that the metallization assembly can create a seal around a substrate.

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68. Sasaki et al. disclose transport rollers (4) for the purpose of moving a substrate (column 7, rows 46-47). Sasaki et al. also disclose a movable deposition chamber in an deposition apparatus which forms an air-tight seal with the substrate for the purpose of independently controlling the film forming time and conditions, preventing the intermingling of gases in different film-forming chambers and shortening the time required and the size of the film forming apparatus.

69. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a conveyor assembly in Kimura et al. order to move a substrate and a moving deposition chamber in Kimura et al. in order to independently control the film forming time and conditions, prevent the intermingling of gases in different film-forming chambers and shorten the time required and the size of the film forming apparatus as taught by Sasaki et al.

70. With respect to claims 30, the shaping assembly of Kimura may comprise a first portion disposed on a first side of a substrate and a second portion disposed on a second side of the substrate, as described above, in order to press the substrate to form the desired shape.

71. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. and Sasaki et al. as applied to claims 27 and 30 above, and further in view of Japanese Patent No. 10-168576 A to Akiyama et al.

72. The prior art discloses the invention substantially as claimed and as described above.

73. However, the prior art fails to teach the conduit as releasably connected to the vacuum source.

74. Akiyama teaches releasably connecting a reaction chamber to a vacuum source for the purpose of providing the capability of attaching the reaction chamber to multiple vacuum sources (solution of abstract).

75. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a conduit releasably connected to a vacuum source in the prior art in order to have the capability of attaching a reaction chamber to multiple vacuum sources as taught by Akiyama.

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76. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. and Sasaki et al. as applied to claims 27 and 30 above, and further in view of U.S. Patent No. 5,975,745 to Oishi et al. and U.S. Patent No. 5,296,036 to Matsuyama et al.

77. The prior art discloses the invention substantially as claimed and as described above, including a metallization assembly movable orthogonal to the plane of the substrate.

78. However, the prior art fails to teach the shaping assembly or the cutting assembly as movable orthogonal to the plane of the substrate.

79. Oishi et al. disclose a shaping mechanism (Figure 1, 28 and Figure 2) movable orthogonal to the plane of a substrate for the purpose of changing the settings of the shaping mechanism (column 4, rows 5-8).

80. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a shaping mechanism movable orthogonal to a substrate in the prior art in order to change the settings of the shaping mechanism as taught by Oishi et al.

81. Matsuyama et al. disclose cutting assembly movable in a direction orthogonal to a substrate to cut the substrate (Figures 9 A-J) for the purpose of replacing an already deposited substrate with a new substrate subsequent to deposition (column 35, rows 29-61).

82. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a cutting assembly movable in a direction orthogonal to the plane of the substrate in the prior art in order to cut and replace an already deposited substrate as taught by Matsuyama et al.

83. Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kimura et al. and Sasaki et al. as applied to claims 27 and 30 above, and further in view of U.S. Patent No. 5,605,637 to Shan et al.

84. The prior art discloses the invention substantially as claimed and as described above.

85. However, the prior art fail to teach the metallization assembly comprising a removable protective insert.

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86. Shan et al. disclose a processing chamber comprising a removable protective insert for the purpose controlling dc bias when plasma processing and for the purpose of facilitating cleaning of the chamber walls (abstract, column 2, rows 55-63 and column 3, rows 10-17).

87. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a removable protective insert in the prior art in order to control dc bias when plasma processing and to facilitate cleaning of the chamber walls as taught by Shan et al.

Conclusion

88. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 703.305.3142. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 703.308.1633. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9310 for regular communications and 703.872.9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.308.0661.

km
May 12, 2003

Alejandro
Luz L. Alejandro
Primary Examiner
Art Unit 1763